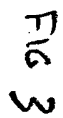
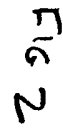


FIG 1



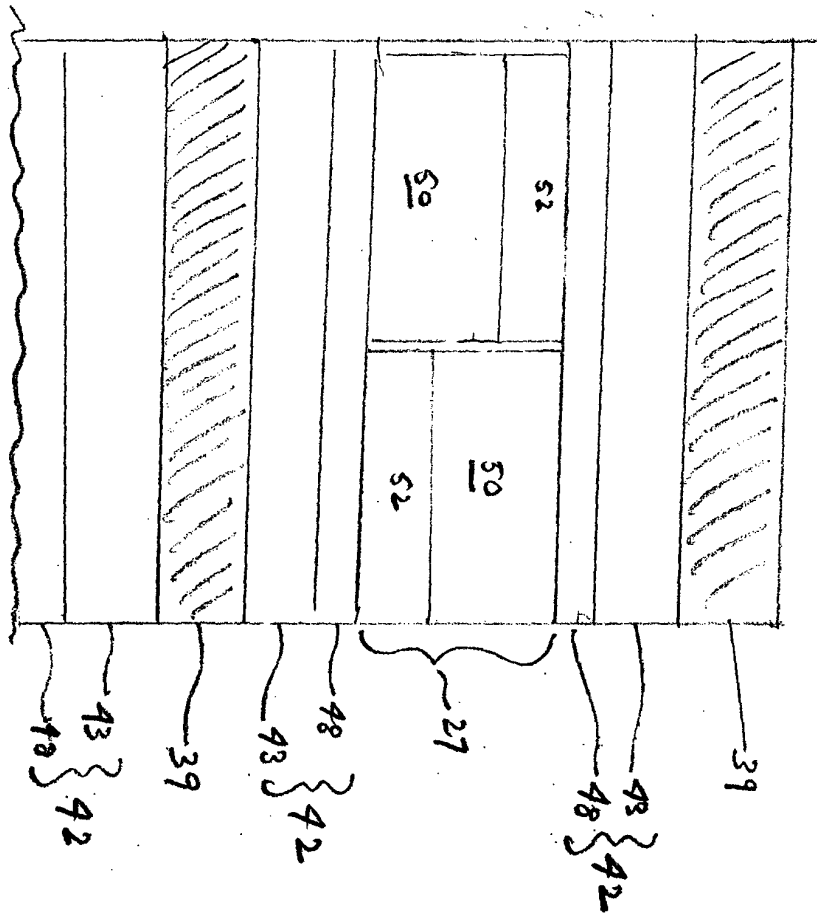


FIG. 4

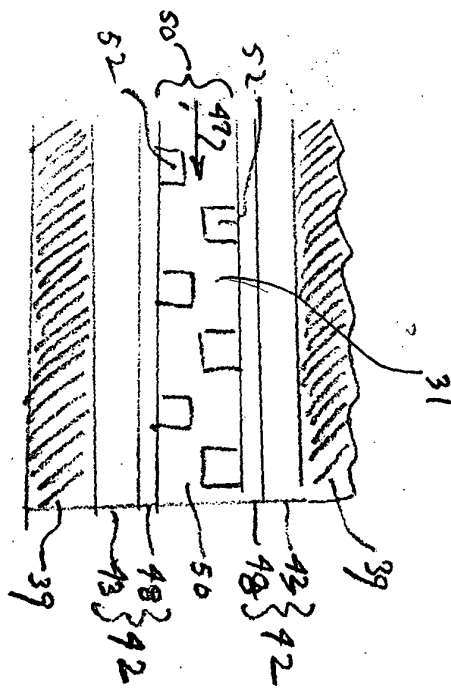
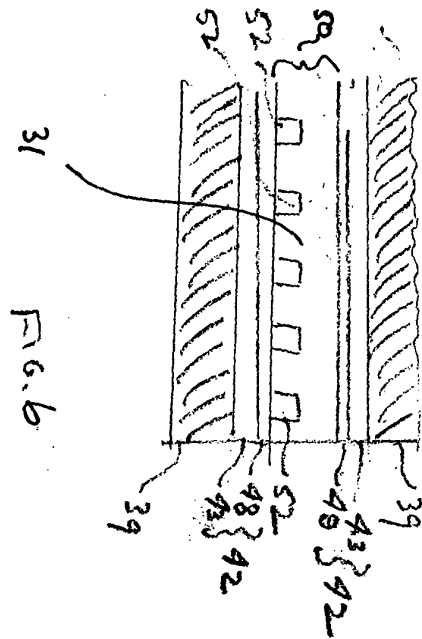


Fig. 5

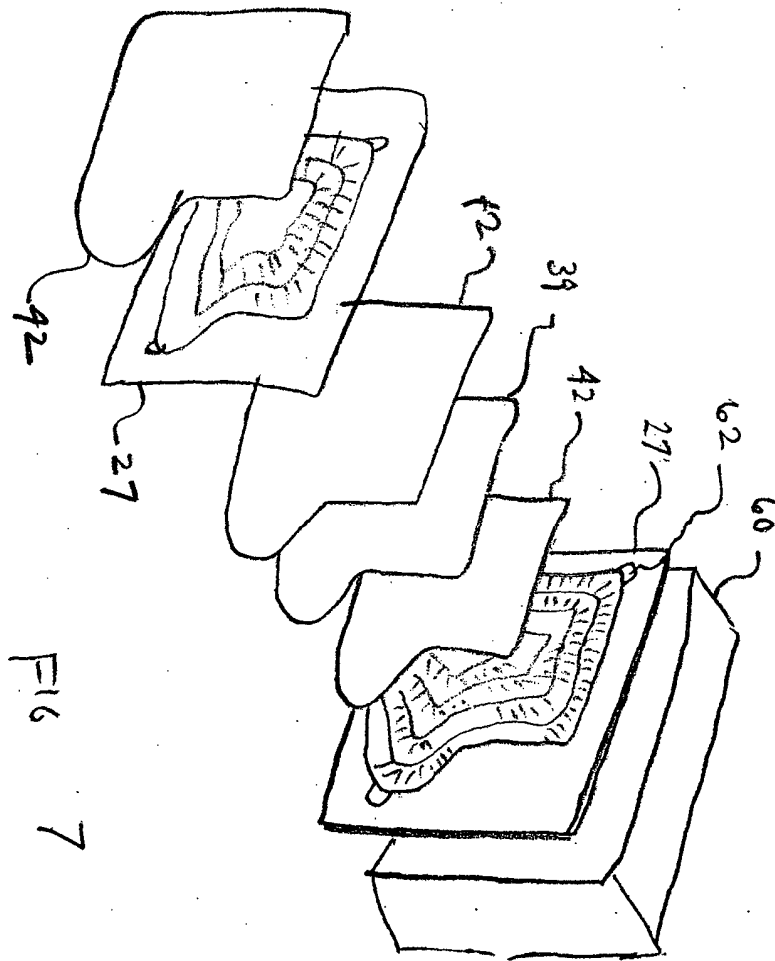


FIG 7

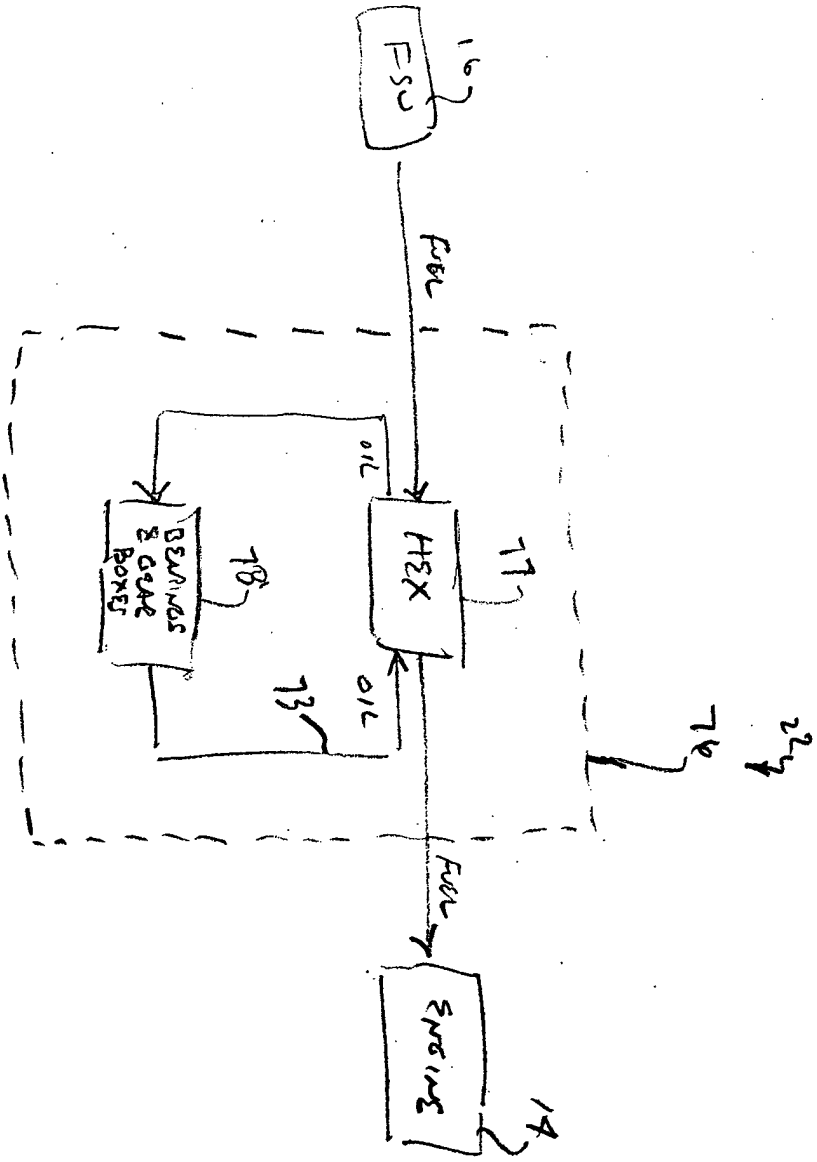
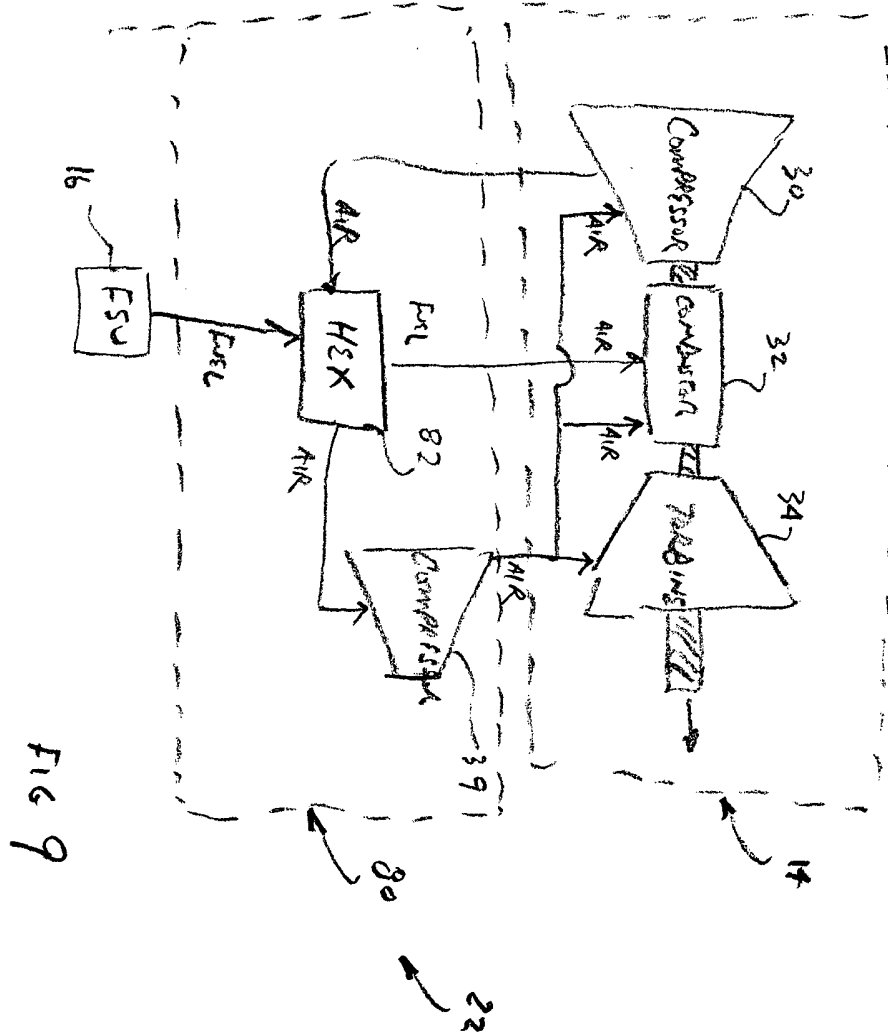


FIG. 2



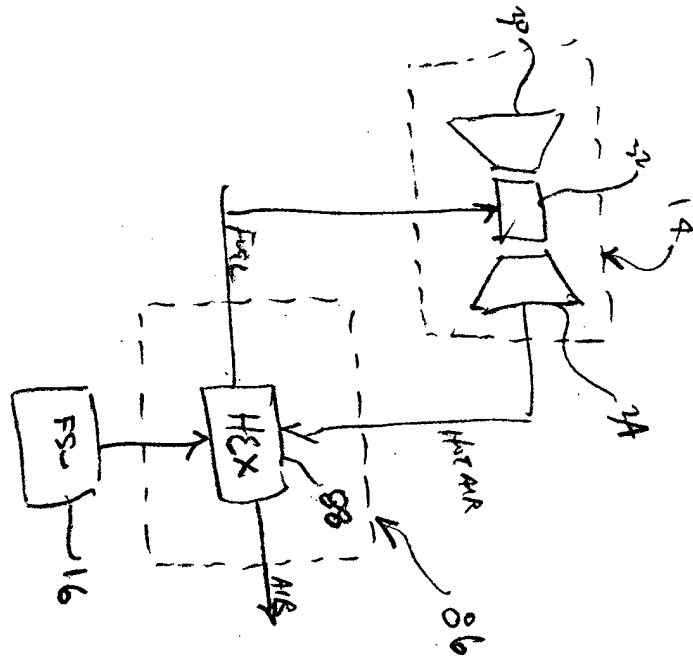


FIG. 10



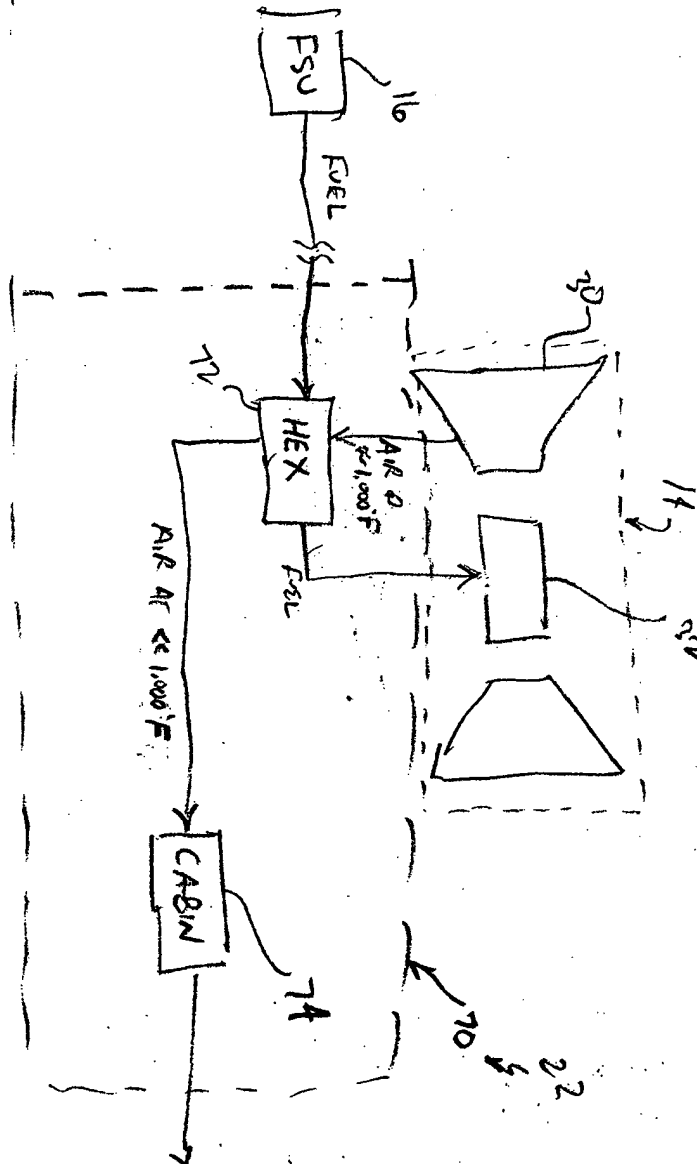


FIG. 11

## Integrated Air Cycle Environmental Control System

- Fuel serves as a heat sink to the aircraft cabin environmental control system (ECS)
- The "Fuel/Air Heat Exchanger"s are the high temperature heat sources from the general system schematic

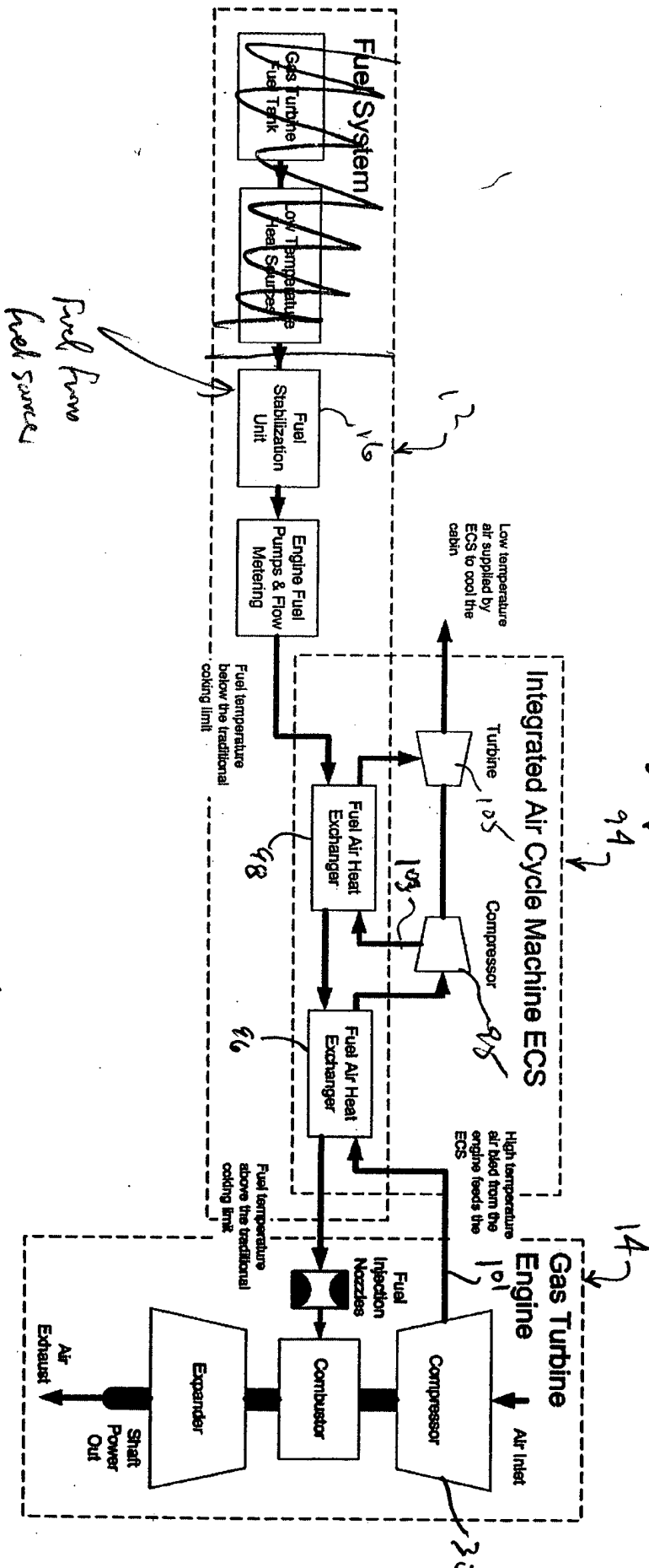


FIG. 12

## Heat Pump Application

- A heat pump that transfers heat from a low temperature source on the aircraft to the fuel acting as the high temperature sink.

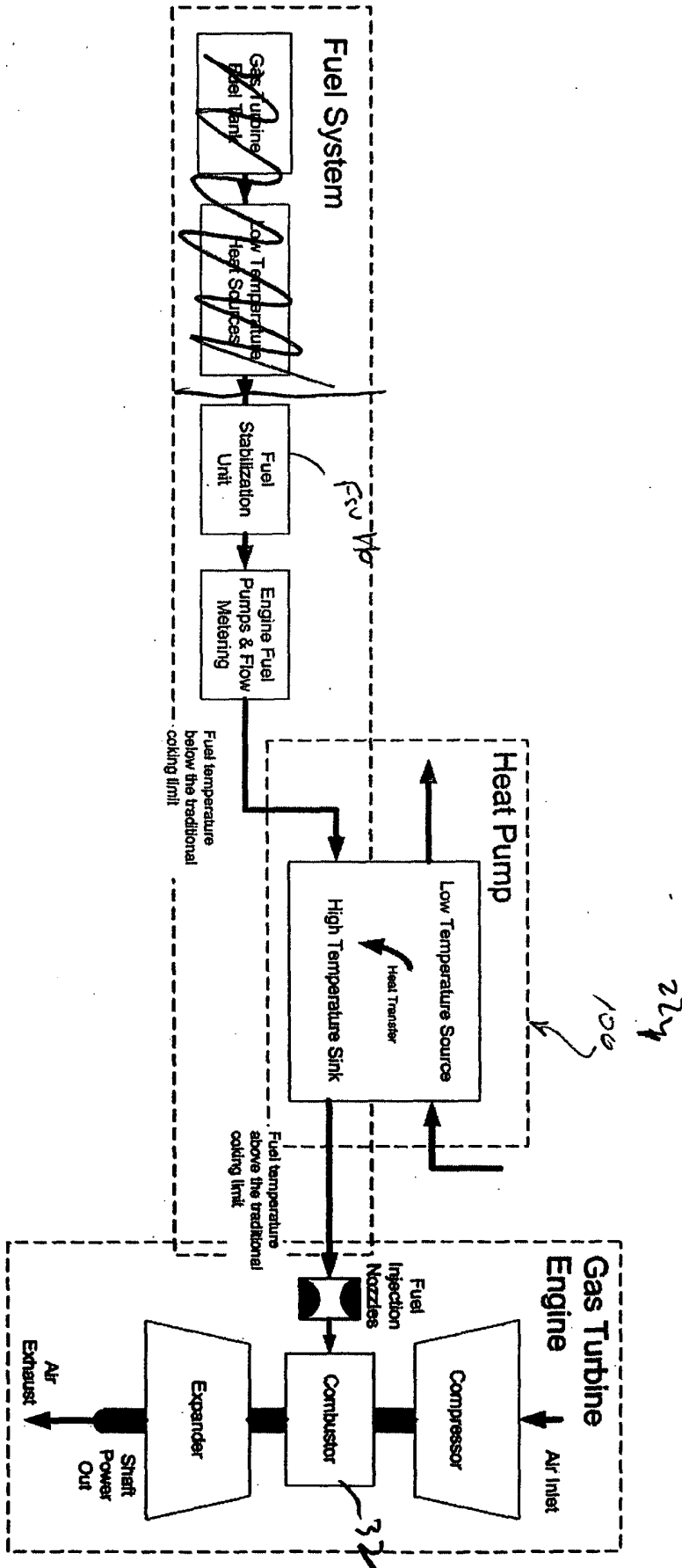


FIG 13